

THE FRUIT-INFESTING FORMS OF THE DIPTEROUS GENUS RHAGOLETIS, WITH ONE NEW SPECIES.

BY J. M. ALDRICH, MOSCOW, IDAHO.

The typical forms of *Rhagoletis* in North America are distinguished by their black colour, the scutellum conspicuously white or yellow and bearing four bristles, the wings with cross-bands, which may be somewhat oblique and curved; the anterior cross-vein is situated about the middle of the discal cell; first vein bristly along its whole length, the third vein only at base.

Two aberrant forms are included in the catalogue, *suavis*, which is pale yellow, and *caurina*, which does not have bands on the wing. The complexity of the relations of Trypetid genera makes it difficult to assign all species to groups where they obviously fit, and it may be better to admit these two species provisionally than to assign them to other genera without examining specimens.

Mr. Doane, Ent. News, 1898, 69, suggests that *Rhagoletis zephyria* of Snow is a synonym of *R. pomonella*, and this I think is correct.

Mr. Coquillett, Jour. N. Y. Ent. Soc., VII, 260, 1899, refers *Acidia fausta* and *suavis* to *Rhagoletis*, and I also agree with this; the former, in fact, is the nearest known relative of *intrudens*, the new species described below:

Table of Species of Rhagoletis.

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|---|------------------------------|
| 1. Colour pale yellow | <i>suavis</i> , Loew. |
| Colour black or blackish | 2. |
| 2. Wing pattern in scattered spots, not bands | <i>caurina</i> , Doane. |
| Wing pattern in bands | 3. |
| 3. Abdomen with pale cross-bands | 4. |
| Abdomen without cross-bands, entirely black | 8. |
| 4. A hyaline cross-band extends entirely across the wing through the distal part of the discal cell | 5. |
| The hyaline portion not extending entirely across | 7. |
| 5. Humeral and stigmatic cross-bands confluent behind. <i>tabellaria</i> , Fitch. | |
| Humeral and stigmatic cross-bands not connected | 6. |
| 6. With a brown spot on the apex of the third vein | <i>cingulata</i> , Loew. |
| Without such spot | <i>ribicola</i> , Doane. |
| 7. The entire brown pattern of the wing continuous | <i>pomonella</i> , Wlsh. |
| The brown pattern discontinuous | <i>striatella</i> , v. d. W. |

8. Femora yellow..... *formosa*, Coquillett.
 Femora black.....9.
 9. The humeral cross-band enclosing a hyaline triangle in
 front.....*fausta*, Osten Sacken.
 The humeral cross-band not enclosing a hyaline triangle. *intrudens*, n.sp.

Rhagoletis intrudens, n. sp.

Shining black; the following parts yellow: Front, face, antennæ, except apical part of arista, palpi, proboscis, cheeks, humeri, a streak from the humerus to the wing below the dorso-pleural suture, scutellum, halteres, all the legs, except coxæ and femora. Wings as figured, the veins whitish in the pale portions and blackish in the rest; the pale portions of the membrane are distinctly white, not transparent except close to the margin; anal cell with only a blunt point; first vein distinctly hairy to the tip.

Chetotaxy: Postvertical pair of bristles rather large, conspicuously white, all other bristles black; vertical 2, orbital 1, fronto-orbital 2 reclinate, lower fronto-orbital 3 cruciate, on lower edge of cheek 1, humeral 1, notopleural 2, dorsocentral 1 (behind the suture, there may be another where the pin is inserted), presutural 1, supra-alar 3, post-alar 0, scutellar 2, mesopleural 2 (on the posterior edge), pteropleural 1, sternopleural 1.

Abdomen uniform shining black, with rather coarse hairs, larger on the posterior margins of the segments; on the posterior margin of the fifth segment a row of well-developed bristles; sixth segment a little longer than the fifth, hairy; ovipositor retracted in the described specimen.

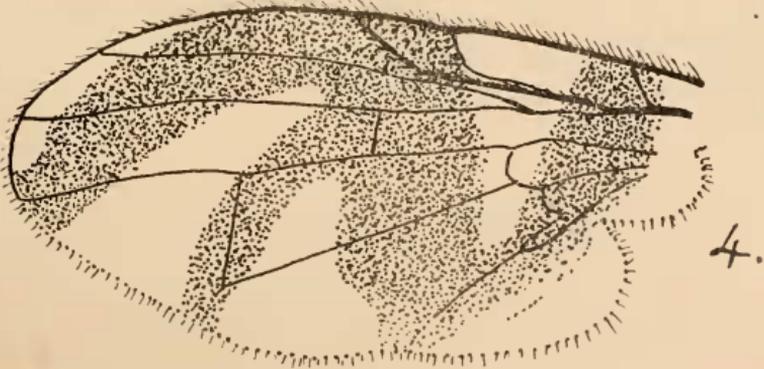
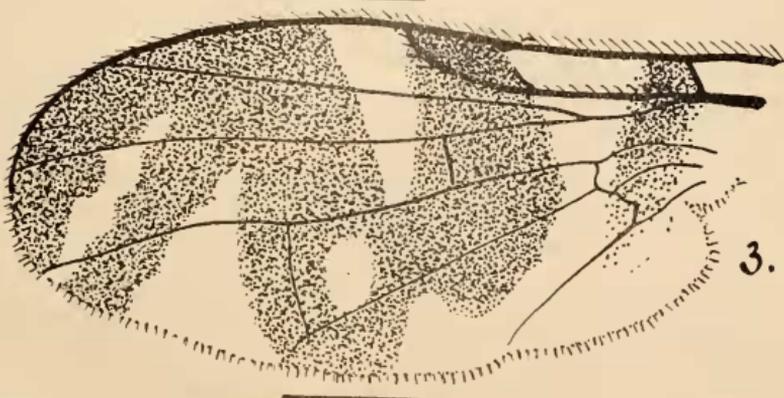
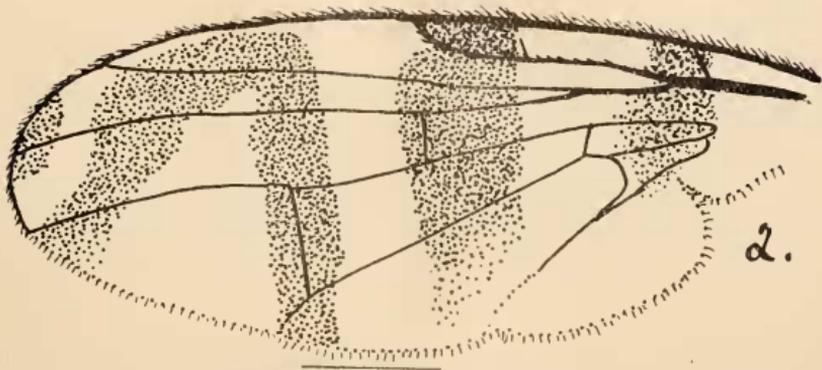
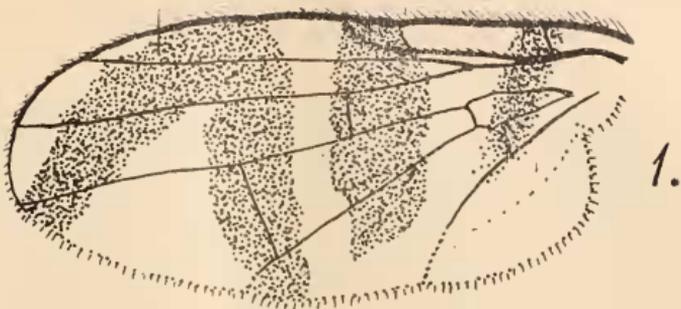
Third joint of antenna reddish, with an acute upturned point at end; arista pubescent; palpi with a few black hairs at tip.

Length, 4.1 mm.; of wing, 3.9 mm.

Described from one female specimen with the following label: "6.3142. W. R. Palmer, Victoria, B. C. Emerged at Ottawa, 19, VI, 1907."

It is highly probable that the same species occurs in the vicinity of Kendrick, Idaho, as I have found late sour cherries there considerably affected with a dipterous larva, which I have not reared.

A few words on the economic relations of the species may be worth while. The habits of but four species of our fauna are known; all these species are figured in the accompanying illustration, the pattern of the wing being sufficient to separate them. All the drawings are on the same



FRUIT-INFESTING FORMS OF RHAGOLETIS.

scale, and made with camera lucida. The upper figure represents the wing of *Rhagoletis ribicola*, Doane, which affects the garden gooseberry and currant in the State of Washington and in northern Idaho. It is a native species, as I collected an adult on a wild gooseberry at Pollock, Idaho, many miles from a railroad; its original food was doubtless the wild species of currant and gooseberry, so abundant in the Pacific Northwest.

There is another Trypetid, *Epochra Canadensis*, Loew, that infests currants and gooseberries from Maine to Vancouver Island, but as it belongs to a different genus I allude to it here only to note the similarity of habit, and perhaps save some one from a wrong identification of its larva.

The second figure shows *R. cingulata*, an eastern species infesting cherries. It has been reported so far only from New Jersey and New York, and doubtfully from the vicinity of Boston. I am indebted to Professor Mark V. Slingerland for specimens enabling me to figure this wing.

The third figure shows our new species, *R. intrudens*, and the fourth is the apple maggot, *R. pomonella*, Walsh. The last is now pretty well distributed in the eastern United States and Canada, but has not yet appeared west of the Rocky Mountains, as far as I know, although I have a specimen from Colorado. Walsh, in his original article, states that the larvæ are found in fruits of *Cratægus*, the thorn-apple, as well as in apple. As it is a native species, we may suppose that the wild crabs and the thorn-apples were its original food-plants.

It remains only to notice *Rhagoletis cerasi*, Linn., which is a European species affecting cherries; it may be introduced into the United States or Canada at any time, in fact, there are one or two unconfirmed references to it in our literature already. It strongly resembles in wing-pattern the first of our figures, that of *R. ribicola*, but the clear transverse band in the middle of the wing is widened in front and contains a triangular brown spot, the base resting on the costa and the apex extending to the third vein.

EXPLANATION OF PLATE 4.

- Fig. 1.—*Rhagoletis ribicola*, Doane.
 “ 2.— “ *cingulata*, Loew.
 “ 3.— “ *intrudens*, n. sp.
 “ 4.— “ *pomonella*, Walsh.

With regard to the new species, *Rhagoletis intrudens*, described above by Professor Aldrich, this is the one referred to by the late Dr. Fletcher in his annual report for 1906, page 228, under the title, "A Cherry Fruit Fly, *Rhagoletis cingulata*, Loew." This insect caused noticeable damage to cherries, in 1906, in British Columbia.

Mr. W. R. Palmer, of Victoria, B. C., in whose orchard the insect was injurious, was asked to send to the Division some living puparia, but in 1907 he wrote that he was unable to find any during the winter. Writing under date of July 20th, 1907, he says: "We had a harder winter than usual, and they do not seem to be as prominent. They still stick to the same trees as last season."

No reports of injury by the larvæ of this fly have been received during 1908.—ARTHUR GIBSON, Division of Entomology, Central Experimental Farm, Ottawa.

LEPIDOPTEROUS GALLS COLLECTED IN THE VICINITY OF TORONTO.—No. 2.

BY DR. WM. BRODIE, TORONTO.

Eucosma Scudderiana, Clemens; *Pedisca saligneana*, Clemens.
(The High Solidago Gall.)

The galls were collected usually in the spring, February and March, occasionally late in the fall, and kept in a suitable jar, until all occupants were out; always two seasons.

Annual collections were made during 12 seasons, from 1883 to 1895, each collection averaging over 45 specimens. Most of the collections were from the vicinity of Toronto, a few from distant localities.

From 1854 to 1864 these galls were very common throughout North York, and are so still. I have found these galls at Owen Sound, North Bruce, Temagami, Algonquin Park, Tobermory, Manitoulin, North Bay, Essex, St. Mary's, St. Catharines, Whitechurch, Scugog and other localities, and no doubt they are common in Ontario wherever the host-plant, *S. Canadensis*, is found.

The galls are at the top of the main stems of the plants, usually within the flowering panicle, rarely on the branches of the panicle; usually but one gall on a plant, occasionally two, rarely three.

The galls are spindle-form, varying in size from 10x16 mm. to 12x28 mm.; diameter of stem below gall from 4 mm. to 5 mm.; the average of